Department of Commerce and Development
Province of New Brunswick Canada

The Food and Beverage Industry in New Brunswick: An Industrial Development Strategy

New Brunswick
Canada

ERRATA AND UPDATES

Page 3	Total # Firms should read 105
Page 88	The proposed Food Science Program at l'Université de Moncton will not begin before September, 1985.
Page 89	The Bathurst Community College will offer a 52-week Quality Control Technician course beginning in September, 1984, in French.
Page 96	The Department of Commerce and Development supports the University in its efforts to secure funding from appropriate government agencies for the establishment of a Food Science Program. The Department cannot provide direct funding at this time, however.

Industrial Strategy

New Brunswick Food and Beverage Industry

Prepared by:

New Brunswick
Department of
Commerce & Development

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1. INTRODUCTION

This strategy represents a snapshot of the food and beverage industry in New Brunswick: its current status, its problems and its opportunities.

The purpose of the strategy is to propose provincial government programs and policies which will enable industry to both remain competitive and grow.

A strategy is an evolving document -- it will change in response to the factors which affect the food and beverage industry. It is also subject to change based on the experience gained during implementation and on the private sector's response to government programs.

The foundation for economic growth in the food and beverage industry is the private sector. The Department's strategy is based on support for the private sector.

The Department can only plan its development efforts with input from the private sector. Business input will continually be sought in the refinement of this and other strategies.

For the purpose of this strategy, the food and beverage sector excludes fish processing companies which will be the subject of a separate strategy, feed mill operations which are the responsibility of the Department of Agriculture and Rural Development and fruit and vegetable packers, which are not manufacturers or processors in the true sense of the word.

2. THE FOOD AND BEVERAGE INDUSTRY IN NEW BRUNSWICK AN OVERVIEW

2.1 Size and Importance

Manufacturing is an important contributor to real domestic product (RDP) and employment in New Brunswick. Based on departmental surveys, manufacturing made up 16 per cent of provincial RDP and employment in 1980, compared with 14½ per cent for Atlantic Canada as a whole.

The food and beverage sector is an essential element of this manufacturing industry. It is one of the largest and most diverse industrial sectors in New Brunswick. Over 100 companies employ more than 6,000 people and manufacture products ranging from pizza to molasses. See Appendix Two for a list of these products.

The New Brunswick food and beverage industry is characterized by a small number of dominant large firms. The fourteen largest firms employ over 75 per cent of the sector work force. Conversely, the 73 smallest firms, which comprise 70 per cent of the total number of firms, together employ only 10 per cent of the work force.

Table One

New Brunswick Food and Beverage Industry Manufacturing Firms and Employment bu Employment Group - 1982

# Employees	# Firms	Employment	
		Minimum	Maximum
Under 25	73	413	574
25 - 49	9	200	307
50 - 99	9	433	546
100 - 199	6	814	881
200+	8	2496	3720
TOTAL	150	4356	6028

Source: Department of Commerce & Development
Survey of New Brunswick Manufacturers

Seasonal fluctuations of employment are prevalent in the industry, as might be expected. The minimum employment level of 4,321 increases by 40 per cent to a maximum 6,078 in the peak employment period. These peaks are most markedly observed in the Frozen Food and Miscellaneous Food Products groupings.

Table Two

Distribution of Firms and Employment by Standard Industry Classification - New Brunswick 1982

Standard Industry Classification	Number of Firms	Employment	
		Minimum	Maximum
Meat Packing	11	421	418
Poultry	2	270	295
Fruit/Vegetable Canners	3	12	16
Frozen Foods	4	1191	2165
Dairy	10	341	437
Bakeries	49	670	774
Confections	3	215	260
Sugar	2	462	462
Miscellaneous	8	319	540
Soft Drinks	9	184	275
Liquor, Beer, Wine	4	271	386
TOTAL	105	4356	6028

Source: Department of Commerce & Development
Survey of New Brunswick Manufacturers

2.2 Capital Investment

The capital investment in plant and equipment by New Brunswick companies is healthy. It should be noted that the Statistics Canada data includes fish processors, but it is assumed that this would not preclude applying the information to the non-fish food processing sector.

Table Three shows that between 1976 and 1981, investment in plant and equipment in New Brunswick increased by 125 per cent while the corresponding Canadian figure was 98 per cent. At the same time New Brunswick was directing a greater percentage of its investment expenditures toward new plant and equipment, rather than repair expenditures. In 1976, New Brunswick and Canada respectively spent 70 and 62 per cent of their investment expenditures on new plant and equipment. In the preliminary 1983 data, New Brunswick's lead over Canada had increased to 76 versus 61 per cent respectively.

New Brunswick companies also devoted a greater share of their total value of production toward plant and equipment. In 1976, this amounted to 5.16 per cent of the value of production for New Brunswick companies, versus 3.85 per cent for Canadian companies. By 1980, the latest year for which all of the data is available, this gap had increased to 6.95 per cent versus 4.4 per cent respectively. This would imply that the cost of doing business for some firms is proportionately higher, since some companies must recover capital investment costs over shorter production runs.

It is significant to note that the provincial productivity does not seem to be affected by this higher level of capital investment. A 1977 study by the Economic

Table Three

Private Sector Investment

Food and Beverage Industry 1976-1982

New Brunswick (Canada)
(thousands of dollars)

	Capital Expenditures			Repair Expenditures			Combined		
	Construction	Machinery	Sub-Total	Construction	Machinery	Sub-Total	Construction	Machinery	Sub-Total
1976	4.7	12.7	17.4	1.3	6.3	7.6	6.0	19.0	25.0
	(110.4)	(298.2)	(408.6)	(43.3)	(203.5)	(246.8)	(153.7)	(501.7)	(655.4)
1977	4.6	13.1	17.7	1.4	8.0	9.4	6.0	21.1	27.1
	(162.2)	(343.6)	(505.8)	(48.9)	(222.0)	(270.9)	(211.1)	(565.6)	(776.7)
1978	6.0	12.2	18.2	1.6	8.8	10.4	7.6	21.0	28.6
	(154.1)	(389.1)	(543.2)	(49.9)	(238.8)	(288.7)	(204.0)	(627.9)	(831.9)
1979	7.6	15.8	23.4	2.9	7.4	10.3	10.5	23.2	33.7
	(207.1)	(480.0)	(687.1)	(53.6)	(248.5)	(302.1)	(260.7)	(728.5)	(989.2)
1980	6.3	29.5	35.8	2.5	10.9	13.4	8.8	40.4	49.2
	(264.6)	(611.3)	(875.9)	(65.6)	(309.9)	(375.5)	(330.2)	(921.2)	(1251.2)
1981	14.6	22.4	37.0	1.8	9.9	11.7	16.4	32.3	48.7
	(224.0)	(519.8)	(743.8)	(64.9)	(300.0)	(364.9)	(288.9)	(819.8)	(1108.7)
1982 Revised Preliminary	9.5	17.2	26.7	1.7	11.7	13.4	11.2	28.9	40.1
	(244.5)	(626.1)	(870.6)	(71.1)	(329.7)	(400.8)	(315.6)	(955.8)	(1271.4)
1983 Preliminary	15.1	27.8	42.9	2.3	11.0	13.3	17.4	38.8	56.2
	(217.8)	(644.4)	(862.3)	(73.9)	(346.6)	(425.5)	(295.5)	(991.0)	(1287.8)

Source: Statistics Canada 31-203.

Council of Canada has shown that there is a lack of correlation between capital stock and output per worker[1]. Because of this, it should not be expected that more capital investment directed into manufacturing would automatically improve the productivity performance of the sector. It points to the importance of services (such as industrial engineering and technical advice) which are provided by the Province in order to help improve productivity. Straight injections of capital are well handled by federal programs.

2.3 Development Trends

Several interesting trends emerge when the development of the New Brunswick food and beverage industry is compared to its Canadian counterpart over the twenty year period from 1961 to 1980. The major indicators that have been examined in Table Four include the number of firms, the value of shipments of manufactured goods, the amount of value added to those goods, the total of wages and salaries, the productivity of the industry and the number of employees.

Certain trends are immediately discernible. There is a simultaneous drop in the number of food processing firms in Canada and New Brunswick. In the following table, Line One shows that the number of New Brunswick firms has fallen by 56 per cent since 1961 and 43 per cent since 1971. The corresponding Canadian declines are 42 per cent since 1961 and 19 per cent since 1971.

Table Four

Development Patterns
Food and Beverage Industry
New Brunswick (Canada)

	1961	1971	1975	1976	1977	1978	1979	1980
1. Number of Firms	178	137	93	89	80	85	82	77
	(7,276)	(5,231)	(4,413)	(4,202)	(3,901)	(4,188)	(4,421)	(4,275)
2. Value of Shipments Goods of Own Manufacturing ('000$)	113,437	214,000	421,863	400,181	406,474	441,693	496,008	535,524
	(4,856,908)	(8,727,304)	(15,813,200)	(16,549,815)	(17,905,893)	(20,684,002)	(23,869,989)	(26,849,201)
3. Value Added Goods of Own Manufacturing ('000$)	37,377	78,035	121,365	130,207	147,914	157,687	164,686	204,575
	(1,648,265)	(3,016,138)	(4,824,356)	(5,200,701)	(5,721,454)	(6,440,680)	(7,1.7,044)	(7,992,856)
4. Salaries & Wages ('000$)	15,737	34,793	55,217	62,159	64,816	70,133	76,204	83,035
	(749,197)	(1,391,132)	(2,171,221)	(2,439,400)	(2,660,737)	(2,897,095)	(3,195,407)	(3,562,646)
5. Productivity: Ratio of Value Added, Total Salaries and Wages	237.96	224.28	219.79	209.47	228.20	224.76	216.11	246.37
	(220.00)	(216.81)	(222.19)	(213.19)	(215.03)	(222.31)	(223.04)	(224.35)
6. Productivity: Ratio of Value Added/Total Employment	7,411	12,033	19,854	20,212	23,989	25,405	26,971	33,864
	(8,410)	(15,095)	(23,716)	(25,953)	(28,476)	(31,467)	(34,733)	(38,434)
7. Employment	5,043	6,405	6,176	6,442	6,166	6,205	6,147	6,041
	(195,981)	(199,805)	(203,428)	(200,070)	(200,921)	(204,675)	(205,194)	(207,960)

Note: Employment and "Number of Firms" data does not coincide with the Department's Survey of Manufacturers. Different methodologies account for this discrepancy.

Part of this shrinkage can be attributed to a rationalization of food processing production into larger and more viable economic units. Because of the large number of small firms, the New Brunswick industry experienced more of this phenomenon. Significantly, the trend seems to have stabilized since 1977. Both Canada and New Brunswick have since reported a maintenance in the number of firms, which could be viewed as an indication of a leaner and more viable industry.

The second major indicator under review is the Value of Shipments of Manufactured Goods (Line Two). While the shipments of New Brunswick manufacturers increased in value by 150 per cent since 1971, this is below the Canadian growth rate of 207 per cent. This is contrasted with a comparison of the growth rate of value added (Line Three). In this measurement, New Brunswick food processors have exactly matched the national growth rate of 160 per cent over the last decade.

The reasons for the slower growth in the value of New Brunswick shipments are difficult to identify definitively. A number of explanations are offered in a discussion of growth constraints later in this report. Certainly one of the underlying problems is the decline of primary agricultural production in New Brunswick in the early 1970's.

The wages and salaries of food sector employees have grown at a slower pace in New Brunswick than they have nationally (Line Four). The rate of growth since 1971 is 139 per cent in New Brunswick and 156 per cent nationally. In 1980, the average annual income was $13,745 for a New Brunswick worker and $17,131 for his Canadian counterpart.

The employment growth in the New Brunswick food processing industry over the past twenty years compared favourably with the Canadian data (Line Seven). Since 1961 employment has grown 19.8 per cent in New Brunswick, compared to 6.1 per cent nationally. Since 1971, however, the growth in food sector employment has either abated or registered slight declines. Part of this can be attributed to amalgamation and plant modernization.

Productivity measurements have always been viewed with some trepidation by Maritime economists. Faced with smaller production runs and a high seasonality, productivity measurements must frequently be justified in terms of their Maritime context. When these measurements are extended to specific industry groupings, the small sampling of firms can frequently contribute to readings which are statistically insignificant or which fluctuate wildly from one year to the next.

With those privisos in mind, it can be said that productivity in the New Brunswick food and beverage industry has increased over the past decade. Using one of two measures, New Brunswick firms exceed the productivity of the Canadian average (Lines Five and Six).

In the first measurement, productivity is expressed as value added divided by total salaries and wages. This indicator fluctuates for both Canada and New Brunswick from year to year. For 1980, the latest year for which figures are available, New Brunswick's productivity exceeds that of Canada's by 9.8 per cent, or 246.3 to 224.3.

Using a second measurement, productivity is expressed as value added divided by total employment. New Brunswick has never exceeded the national figure for this measurement, although the 1980 figure achieved 88 per cent of the national average, a 20 year high. Once again, it is helpful to recall the structural factors which affect productivity measurements in the Maritimes: a higher degree of seasonality and the inconvenience and increased costs that that seasonality imposes, and the smaller production runs which have a significant impact on per unit costs.

2.4 Summary

In summarizing the description of the New Brunswick food and beverage industry the following highlights are once again recalled:

- The food and beverage industry is one of the largest and most diverse sectors of the manufacturing industry in New Brunswick. It provides over 6,000 jobs in over 100 firms throughout the Province.
- The industry is characterized by several large firms employing a large number of people and a large number of small firms employing a few people each.
- Employment is partly seasonal.
- Investment in new plant and equipment by New Brunswick firms has exceeded the national average, but this has not affected the overall productivity of the industry.
- Since 1961, the number of firms has declined but since 1976 the numbers have stabilized, reflecting an enhanced, more viable and (in some cases) a more mature industry.
- The growth in the value of shipments has trailed the national rate, due in part to stagnant growth in parts of the primary sector.
- The growth of value added has matched the national rate.

- Wages and salaries are below the national average.
- Employment growth has leveled off in recent years, although the growth rate since 1961 is over three times the national rate.
- Using certain measures the productivity of New Brunswick firms compared favourably with their Canadian counterparts.

3. CONSTRAINTS TO GROWTH

This chapter presents a discussion of the various constraints which have tended to inhibit growth in the New Brunswick food and beverage industry. An understanding of these constraints is important, since they might present an obstacle for the firm seeking to undertake or expand production in the industry - obstacles in addition to the normal array of economic constraints.

In general, the following constraints affect the New Brunswick food and beverage industry:

- Inadequate primary sector production
- Rapidly rising costs
- Lack of research and new product development
- Chain store buying practices
- Lack of food science training in the Atlantic Provinces.

Each of these constraints is discussed in greater detail below.

3.1 Primary Agricultural Production

One of the findings of the Agricultural Resources Study[2] was that the lack of primary production is "the major constraint retarding the processing of New Brunswick agricultural products". The study concluded that the development of the primary sector would have a direct bearing on the potential of the processing sector.

The report recognized that the development of further processing capacity would not come easily. In the author's words:

> Given New Brunswick's limited volume of output in most agricultural commodities, plus the seasonal nature of this output and also the plant scale and capital investment required in processing, an important aspect of strategy must be to encourage primary production keeping in mind the supply needs of the processing sector[3].

How has the province fared since this report first appeared in 1977? One federal-provincial agriculture development agreement has been completed and a second will wind up at the end of this fiscal year. One of the key elements of the second development agreement was the establishment of commodity strategies which established production targets for various commodity groups over the life of the agreement. The achievement of these targets, it was suggested, would go a long way toward lessening our dependence on imported foodstuffs and contribute to the growth of the food processing industry.

What progress has been achieved as of the publication of this report? Clearly the results are mixed.

The production targets set in 1978 for four commodities have or are likely to be met. This group includes the production of strawberries, vegetables, hogs, blueberries and milk. In the poultry sector, production targets are not likely to be met, but chicken, turkey and eggs are subject to national marketing considerations which have had a constraint on the province's goal of increased production.

A second group includes commodities that did not achieve their original production targets. This includes potato, apple and beef production.

The reasons for the production shortfalls for these commodities are well documented and largely beyond the influence of the provincial government. Market demand, poor prices and the weather seem to have been the main impediments to growth. Beef production is not expected to increase substantially until producers begin to receive a better return on their investment. The potato industry is in a period of adjustment at the present time, with total acreage beginning to stabilize and producers joining together to plan production and marketing.

Table Five

Commodity Targets, 1978-83

Canada-New Brunswick Agriculture Subsidiary Agreement

Commodity	1978 Production	Original 1983 Target	Revised Target	Latest Production
Blueberries	3.3 million lbs. (1977)	7.8 million	5 million	7.6 (1982)
Potatoes	1.35 million cwt. seed	1.9	-	1.48 (1981-82)
	2.02 million cwt. table	2.5	-	2.51 (1981-82)
	7.16 million cwt. local seed/ processing	7.5	-	5.65 (1981-82)
Apples	250,000 bushels (1977)	400,000	350,000 revised originals 700,000 (1988) 500,000 (1988)	315,000 (1982)
Strawberries	900,000 qts. (1977)	1.7 million	1.2 million	2.30 (1982)
Vegetables	7,000 acres	8,000	7,750	7,570 (1982 est.)
Dairy	64.6 million litres Class I	77 million	-	69.1 (1982)
	14.7 million litres Industrial	50 million	-	56.7 (1982)
	yield 4,200 kg. per cow	5,720 kg. per cow	-	5,491 (1982) kg. per cow
Beef	9,000,000 lbs. dressed	13,000,000 lbs.	11,000,000	9,200,000 (1981)
Hogs	49,412 hogs	110,000	130,000	128,089 (1982)
Poultry	21.1 million lbs. chicken	29.1	-	21.1 (1982)
	2.4 million lbs. turkey	4.6	-	1.8 (1982)
	8.8 million doz. eggs	11	-	9.8 (1981)

Serious winter kill has resulted in production declines among apple growers. Coupled with conservative attitudes toward change and the long lead time needed to produce product, significant production increases are not expected for some time. In the meantime, the apple industry is currently the subject of a provincial inquiry which is attempting to determine a long term growth strategy.

If secondary processing is expected to grow, continuous growth in agricultural production will be helpful. But we must not fall into the trap of depending entirely on the primary sector to fuel growth in processing. New or expanded operations processing blueberries, milk and pork have been established because of growth in primary production. But the new employment associated with these operations has been marginal and has not resulted in an overall growth in sector employment. Increasingly, we will have to look at new product development and the processing on non-indigenous materials in order to promote renewed growth.

This is not meant to downplay the importance of the primary sector. The next five year development period will be critical for both the producing and the processing sector. There is some cause for concern because joint

federal-provincial funding of development agreements may not be renewed. It remains to be seen whether a new "matrix" approach to development (in which projects are divided among governments and funded separately) will be as effective a method as joint development.

Extensive discussions have taken place with a view toward a new federal agriculture development agreement. At the same time, new agreements have been signed in other provinces, some containing provisions for assistance to the food processing industry. The Province would welcome any additional federal funds for processors. New initiatives should be the result of consultation with departmental officials and should complement existing programs and services.

3.2 Rising Costs

Rapidly rising costs are a second constraint to further processing development, although this problem is not exclusive to New Brunswick. The prohibitive cost of a new or "green field" plant, especially a major fruit and vegetable processing facility, is foremost among these rising costs. The use of expensive materials in the design of plants, such as stainless steel, have contributed to the high cost of new facilities.

The cost of the raw material will also affect the viability of a processing operation. Unless a processor can be assured of a secure supply of the primary agricultural product at a reasonable price for a specified period of time, the likelihood of a decision to proceed with production is unlikely.

Energy costs are an increasingly important contributor to the operating costs of the food and beverage industry. In 1962, energy costs contributed 1.9 per cent of the cost of production in the sector. By 1972, that amount had dropped to 1.5 per cent. In the wake of the energy crisis that percentage has risen dramatically: To 1.8 per cent in 1978, 2 per cent in 1980, 2.4 per cent last year and an estimated 2.6 per cent for the current year. In a low margin industry, such a rapid escalation can cause serious problems. Energy cost control is thus a critical element in the management of the food and beverage firm. For this reason it is discussed at greater length and certain program proposals are made in Chapter 13 of this report.

Smaller production runs are characteristic of food processors in the Maritime provinces. Most firms serve a regional market resulting in small scale production, often made up of numerous product lines. This results in higher per unit costs than other companies which are oriented to a larger national market or which operate at higher capacity.

Transportation costs have risen in recent years, in part due to the rise in transportation fuel prices. Coupled with this are the reductions in the Atlantic Region Freight Assistance Act subsidies and the fixed (and thus declining) level of assistance under the Feed Grain Assistance program. Significant changes in other forms of assistance may also occur. To illustrate the cost to New Brunswick firms, one plant owner estimated that the reduction in freight assistance will cost his firm $100,000 in this, the first year that the reductions take effect.

3.3 Lack of Research and New Product Development

When industrial officials were asked about the formula for success in the food and beverage industry, their responses were surprisingly similar in nature.

- Find a niche in the market place
- Make the best quality product possible
- Keep your market share by introducing new products.

A research and development capacity is needed if this approach is to be adopted. Several New Brunswick firms are leaders in their industry and have developed this capacity within their companies or in conjunction with government agencies and consultant firms.

What is obvious is that most firms do not have the resources to undertake any in-house research and development. Many have not availed themselves of the programs and facilities that are available to them in the Maritimes. Several proposals are made later in Chapter 11 of this report as a means of encouraging greater work on new product development and improvement.

3.4 Chain Store Buying Practices

The granting of discounts or allowances to food store chains is an accepted practice in the Canadian food industry. It is an important source of revenue for wholesalers and retail chains, amounting to a total of approximately 6 per cent of sales. It results in lower costs to the retailers who pass this on to the consumer in the form of lower food prices.

The whole practice of discounting and allowances was the subject of a recent Royal Commission of Inquiry appointed by the Province of Ontario[4]. While the Commission absolved the major chains of any duplicity in the discounting practice, it made several observations which are strongly applicable to the New Brunswick industry.

- Small processors (sales under $10 million) are having a difficult time financially.
- Although there is no significant difference in rebate levels among differing sizes of firms and no support for the theory that rebates are paid on the basis of the size of the firm, the market strength or size of a processor is an important factor in solid financial performance. (The healthy firms are usually the larger ones and they can afford to pay the rebates.)

In New Brunswick, where most of the food processors are small, and where profit margins are slim, it is difficult for provincial firms to offer large rebates and thus compete for shelf space with national companies. As the buying by the chain stores has become regionalized, the national chains are further removed from the provincial scene and the competition between firms offering discounts and rebates becomes more intense.

Discount allowances, once established, rarely fall. Lower priced instore or "house" brands are even subject to discounts and allowances. This has taken a heavy toll in the bread industry where profit margins for house brands are exceptionally slim. The bread sales of firms with established brand names have fallen steadily in recent years. Even those firms which have managed to maintain a market share by producing "house" brands admit that the

returns are too small to enable them to maintain viable operations. The dairy industry has also been hard hit. Allowances have whittled profit margins to unacceptably low levels.

The strength of large retailers is likely to increase even further as competitors join together to form joint buying groups. The recent establishment of the IGA/Safeway group means that 5 buying groups constitute virtually all of the wholesale buying power in the country.

There is very little that the Province can do to alter these practices, apart from exerting moral suasion. It is important to recognize though, that discounting represents a significant constraint to growth for New Brunswick companies. Only a healthy and viable industry can hope to cope with the payment of ever-increasing discounts. The achievement of that health is the goal of this strategy and of all our departmental efforts.

4. THE PROCESSED MEAT AND POULTRY INDUSTRY

4.1 Development Trends

The New Brunswick meat and poultry processors constitute one of the smallest groups in the food and beverage industry, but their prosperity is vitally important to farmers of New Brunswick.

The development of the industry has shown encouraging signs of growth, despite initial stagnation in the early 1970's* (Appendix IV). According to Statistics Canada data, the number of meat processors in New Brunswick has stabilized in recent years at six, from the ten firms in operation in 1971. Nationally, the number of firms has grown slowly since that time. Not surprisingly, the national growth in the value of shipments has outpaced the provincial rate, by 227 per cent to 166 per cent.

One of the major reasons for this slower growth rate and decline in the number of firms is the fall in primary production in the early 1970's. Hog production declined dramatically until it reached a 15 year low in 1976. Commercial offerings of beef cattle have fluctuated greatly. In 1977 production reached a twenty year high and yet in 1980, production was below the previous decade's low mark, set in 1972.

* The statistical observations made in this Chapter exclude the poultry industry. No data is available on the provincial poultry processors because of the confidentiality provisions of Statistics Canada.

The growth in value added has been more encouraging. New Brunswick has matched the 10 year national growth rate in value added. In addition, New Brunswick firms add proportionately more value to the raw product than the Canadian average, 22 versus 17 per cent.

Productivity has improved significantly since 1978. New Brunswick firms now lead Canadian firms in one measure of productivity, expressed as value added over total wages and salaries. In the other measure, value added over total employment, provincial firms have made large improvements, to the point where provincial productivity has grown from 51 per cent of the national rate in 1972, to 85 per cent in 1980.

Employment in the New Brunswick industry has remained stable, probably because of the decline in the number of firms. National employment has grown steadily, reflecting the gradual increase in the number of firms.

4.2 Constraints in the Sector

Structural constraints can affect the meat processors ability to grow in New Brunswick.

In the case of one poultry processor, a major concern is competition from Quebec. Quebec processors pay a lower price for their unprocessed materials, although vertical integration in New Brunswick may be a contributing factor.

Coupled with the Quebec market's economies of scale, the threat of cut throat competition in some parts of the province is very real. Dumping of product from as far away as Ontario appears to have occurred.

Some have pointed to the marketing system in Quebec as a model for better relations between producers and processors. The Quebec system provides a forum for processors to justify the purchase offers that they make to producers. A recommendation for increased dialogue between producers and processors in the marketing system is made elsewhere in this strategy. (See The Department and the Food and Beverage Industry, Chapter 10.)

A cause for some concern is the low economies of scale which affect provincial poultry processors. The long term viability of small processing operations may be in question, especially at a time when processors are seeking cost cutting measures to maintain a competitive advantage. In the case of one firm, the closure of their major Quebec plant coupled with a large undercapacity at their newer Nova Scotia plant adds concern to the situation.

The constraints in the meat processing industry are more numerous. The greatest problem is that the sales from current markets do not justify the investment in high

speed processing equipment and equipment for new lines. New equipment would not be used at reasonable capacity and the high capital cost would not be easily recovered.

Two of the three largest New Brunswick packers choose to do everything at their plants, from slaughtering right up to processing. Since every operation is done in small lots, unit costs rise accordingly. As a result, New Brunswick plants are more capital and labour intensive and productivity suffers. Costs have to be controlled carefully in order to remain competitive.

Pressures to keep costs low are coming from various sources: From the chains which expect discounts and allowances, to outside competitors who often dump surplus products on the Maritime market. When other firms drop their prices, New Brunswick companies must follow suit or else they stand to lose their share of the provincial market.

Service is also a problem. Specialists must be brought in from outside the Maritimes to service specialized equipment. This is almost always done at great expense. There appears to be insufficient demand for many of these services to justify a local service facility for the Maritimes.

4.3 Processing Opportunities

As was previously mentioned in this strategy, there are national marketing considerations that must be respected in the poultry business. New Brunswick's primary production has been limited by these production quotas.

The major hope for increased production is an increase in the population or an increase in per capita consumption of poultry and poultry products. Only the latter can be realistically approached. Efforts have been made to promote the consumption of poultry products by New Brunswick consumers. A similar promotional effort was undertaken by the meat processors in recent years with good results. The industry should consider repeating these campaigns periodically.

New Brunswick poultry processors are as efficient as their Canadian counterparts, despite the fact that we lack the economies of full scale production. Even with this efficiency, it is unlikely that the limited market demand will permit the establishment of a viable secondary poultry processing plant in the Maritimes.

The meat processing opportunities appear to lie in the development of specialty meat products and the increased consumption of New Brunswick products by Maritime households. Given current high interest rates and the low profit margins in the industry, the development of new products seems unlikely in the short term.

The production of new products and sliced luncheon meats likewise depends on a turn around in economic conditions. The cost of new processing equipment is so high that financing terms and market conditions must be at their optimum. Joint ventures with other firms, whether Canadian or foreign, may provide the necessary input of finances and expertise that would enable new processing to proceed.

4.4 New Product Development

New Brunswick meat and poultry processors stand to benefit greatly from the establishment of a food and beverage industry research and development fund. (See Chapter 11.)

While a few firms have limited laboratory facilities, all lack equipment to conduct research into fats and proteins and microbiology. The fund would enable this research to take place, without the high overhead that New Brunswick firms would be unable to absorb.

Trained food science personnel with practical experience are required by the industry. Most who are currently employed in New Brunswick have been recruited from other provinces, or have improper training for the field in which they are employed. Recommendations for a food science technology program with practical (co-operative) training is made elsewhere in this strategy. (See Chapter 14.)

5. THE NEW BRUNSWICK DAIRY INDUSTRY

5.1 Development Trends

According to the Census of Manufacturers, the New Brunswick dairy industry consists of 11 plants which employ 648 persons, primarily in the southern part of the province. The plants are mostly small and employ less than 50 persons each (Appendix VI).

The New Brunswick industry, like its Canadian counterpart, has seen a significant decline in the number of plants since 1961. Across Canada the number of plants has declined by 73 per cent, while the New Brunswick decline is a similar 77 per cent. The days of the very small dairy with limited production runs destined for a local market are over. Rising production costs, distribution costs, retail discounts and allowances and many other factors have all contributed to this decline.

Canadian production, based on the value of shipments, has grown by 194 per cent since 1971. New Brunswick production has grown at a slower rate of 147 per cent. This can be explained in part by both the slower rate of population growth in New Brunswick and by the decline in primary production in the first half of the seventies.

It is a traditionally held view that there could be more secondary processing of milk in New Brunswick than

currently takes place. Surprisingly, when expressed in terms of value added over total production, New Brunswick adds more value to its raw product than the Canadian average.

Over a twenty year period, the wage and salary bill of the dairy products industry grew at a faster pace than the Canadian rate. Since 1971, that has changed, with Canadian wages and salaries increasing by 123 per cent, compared with 89 per cent in New Brunswick. The average Canadian wage at $17,758 is also higher than the New Brunswick average of $14,156.

Productivity measurements show a New Brunswick rate which is from 75 to 85 per cent of the national average. The major contributors to the lower rate are the preponderence of small firms, smaller production runs and higher per unit costs of local dairies and the higher transportation cost component in New Brunswick than elsewhere. Milk is travelling greater distances to fewer processing plants and consumers at a higher cost.

As might be expected, employment in the industry has declined slowly but steadily since 1961. New Brunswick employment is down 15 per cent over the period while Canadian employment dropped 18.5 per cent. Curiously, the peak in New Brunswick employment occurred later on in 1975 - since then, employment has dropped so that it now closely matches the twenty year Canadian average decline.

5.2 National Marketing Considerations

Milk is subject to national marketing considerations. While there are no national quotas on milk which is produced for the fresh fluid market, it is subject to the demand of the provincial market where producers hold individual quotas. Milk which is destined for other end uses is classified as "industrial", and is controlled by national sharing quotas. Federal policy calls for a gradual reduction in the size of the national quota for industrial milk as market demand for milk powder and butter declines, although the decline in butter consumption may be in the process of reversal.

As of August 1980, New Brunswick's entitlement of the total national production was 2.334 million kilograms of butter fat. Of a national total of 176.1 million kilograms, this represented 1.33 per cent of national production and much less than our 3 per cent of the national population. Provincial production has, until recently been below our entitlement and we have had the luxury of being able to plan for that achievement. We achieved our share of the entitlement during 1982. At the same time, the global surplus of dairy products (either stockpiled or on the world market) has placed pressure on industrial milk quotas in Canada. The provincial quota has consequently been twice reduced since last August, now standing at 2,217 million kilograms of butter fat.

Table Six

Utilization of Whole Milk, New Brunswick

1978 - 1980

Commodity	Utilization			Percent Utilization		
	1978	1979	1980	1978	1979	1980
	- kilolitres -					
Creamery Butter	19,748	19,719	17,640	19.0	18.0	15.0
Other Factory Products *	16,713	21,015	29,338	16.1	19.1	25.0
Total Factory Products	36,461	40,734	46,978	35.1	37.1	40.0
Fluid Sales	67,415	68,961	70,496	64.9	62.9	60.0
Total Farm Sales	103,876	109,695	117,474	100.0	100.0	100.0

* Such as sour cream and cheese.

Table Six

In the recent past, primary milk production statistics were not encouraging and this ultimately had a bearing on the growth of the processing industry. There was a decline in the number of farms and a decline in production that was not arrested until 1978. Farm revenues from the sale of industrial milk reached an all-time low in 1976. This, too, has been reversed and revenues have been growing steadily since then.

Recently primary production and producer revenues have been growing at healthy rates. Total milk utilization for processing purposes increase by over 10,000 kilolitres between 1978 and 1980, an increase of 28.8 per cent. But the potential for increased processing is much greater because of an underutilized amount of 35,000,000 litres which is currently being exported to Quebec for processing.

5.3 Milk Exports and Processing Opportunities

Approximately 30 per cent of the total milk production of New Brunswick or 35,000,000 litres is currently being exported. It is trucked to a single processor in Trois-Pistoles, Quebec, where it is turned into butter and milk powder. That link in the New Brunswick milk marketing system is a precarious one.

Truckers are constantly subjected to harassment by Quebec transportation officials, there is no guarantee that the plant will continue to buy New Brunswick milk and the costs of transporting the milk amount to $600,000 per year.

There has been considerable discussion about further processing of the milk exports in New Brunswick. Many industry officials contend that there is no justification for a new processing facility based on a seasonal supply of 35,000,000 litres.

A proposal from Dairytown Products will see the establishment of a producer owned plant in Sussex to produce milk powder and butter. There are several benefits from such as plan. It would result in further processing and would eliminate our dependence on precarious exports, it would create up to 20 full time jobs, it would reduce our net dependency on imported butter and milk powder and it would produce two commodities which have assured markets supported by the purchasing guarantees of the Canadian Dairy Commission.

Existing processors are reluctant to support this proposal. They are uneasy about the links between the Milk Marketing Board and the Dairytown owner/producers and the leverage that this could give to the Board in their dealings with the other processors. With 30 per cent of provincial production going to one plant, this leverage is not insignificant.

The role of the Department of Commerce and Development is to encourage viable economic growth, without regard to location or to project sponsorship. At the same time, the Department must be assured that Government assistance does not harm existing New Brunswick firms and their markets. In this regard, financial assistance is available to further process New Brunswick milk into higher value-added products. It is not available and would not be available for new firms to establish fluid milk processing facilities, since existing capacity to supply these needs already exists.

The conflict between the Milk Marketing Board and existing processors over the allocation of industrial milk supplies is typical of the controversy which pervades the system. There must be a forum to resolve these issues if the development of the dairy industry is to continue. It goes beyond the short term interests of price supports - Marketing Boards must accept some responsibility for, and participate in, the continued growth of the food processing industry in New Brunswick. This general problem is described elsewhere in this strategy in Chapter 10. ("The Department and the Food and Beverage Industry.")

5.4 New Product Development

As the median age of the population increases, typical consumer tastes and spending patterns change. This is acutely felt in the dairy industry where milk and milk products have, until recently, been identified more with a youthful market. For this reason, market research and new product development are essential to the long term health of the industry.

Some New Brunswick dairies are actively pursuing new product development, but the total number of firms and the research expenditures are small. (Recommendations are made in Chapter 11 of this strategy to encourage companies to undertake research and development activities.) One area where a need for development has already been identified is the area of small unit packaging for the school milk and single serving markets.

5.5 Energy Conservation

The dairy industry spends a great deal on energy and these energy costs are an ever-increasing component in the total cost of processing. The Dairy Council, as part of a voluntary Food and Beverage Industry Energy Conservation Task Force, has established national targets for energy consumption reductions. Information and expertise is shared among the members and the industry has generally met or exceeded its energy reduction targets.

Only a few of the provincial dairies participate in this national program. In addition, none have made use of the funds available from the federal government for conservation and retrofit expenditures. Suggestions for energy conservation programs are made in Chapter 13 of this strategy but, in addition to those proposals, the industry should be encouraged to participate in the national conservation efforts of the Dairy Council.

5.6 Other Development Opportunities

The establishment of an Ultra-High Temperature (UHT) milk processing facility is unlikely to take place in the short term since the announcement that a plant would be built in Nova Scotia. Wherever a future plant is located, it will have to incorporate other products such as fruit juices or flavoured milk to provide sufficient production economies of scale. As the New Brunswick apple industry grows and as alternative processing options arise, processors should review the feasibility of a UHT plant. While some existing processors may be concerned about the effects of UHT milk on fresh sales, UHT milk marketed for remote areas and camps and flavoured UHT milk will contribute to a total increase in fluid sales. This increase will ease the pressure on our industrial milk quota and would free up milk for further processing in the Province.

6. THE BAKERIES

6.1 Development Trends

The New Brunswick bakeries form a small, highly competitive industry and an important part of the food and beverage industry.

Using the Statistics Canada Census of Manufacturers as a data source, Appendix VIII shows that 26 firms provide over 700 jobs*. The number of firms has fallen by 56 per cent since 1961, compared with a Canadian drop of 43 per cent. The reason for this shrinkage is explainable, as the smaller, less viable operations were absorbed by large firms which could provide the infrastructure and financial resources needed to survive in a highly competitive market.

Despite the relatively larger drop in the number of New Brunswick firms, the provincial statistics show striking similarity to the corresponding Canadian data. Bakeries make up one-third of the number of food and beverage companies in New Brunswick as they do in Canada. They provide identical proportions of the total food and beverage sector employment, about 12 per cent. Both groups contribute close to 8 per cent of the total sector value added, although the New Brunswick bakeries contribute a higher percentage of the total provincial manufacturing shipments (6 per cent) than the national average (4.4 per cent).

*Appendix VIII differs from Table Two because Statistics Canada tends to omit smaller firms which are included in the N. B. Manufacturers' Survey.

The average annual wages are similar: $14,018 in New Brunswick and $15,094 in Canada.

As part of the consolidation and rationalization process in the industry, employment has fallen by 23 per cent in New Brunswick since 1961 and 31 per cent since 1971. The corresponding Canadian declines are 19.2 and 10.4 per cent.

Using either measure of productivity, New Brunswick bakeries are essentially as productive as the average Canadian bakery. This has been consistently true for the past twenty years of measurement.

6.2 Changes in the Baking Industry

Several important changes in consumer tastes and bread marketing have occurred in recent years. These have had a profound effect on the baking industry. Among these changes are:

- A growing preference for whole wheat, ethnic and "natural" breads over white bread
- Heavy sales allowances demanded by the retail chains
- Rise in costs, particularly energy and related distribution costs
- The growth of bun franchise bakeries and retail chain bakeries at the expense of small independents and the large bakeries

- Growth of "house" brands with lower margins which reduce the profits of the bakeries
- Declining per capita consumption of bread
- Increased home baking of bread.

These factors will result in continuing structural changes in the bread industry. The medium size independent companies will continue to be hurt by the smaller, aggressive bun franchises and by the sales allowances which exert pressure on the prices and the margins of the larger bakeries. The lack of affiliation between the medium size bakeries and the grocery retailers and their inability to access the convenience store market will likely prove to be harmful in the long term.

The bakery products market in New Brunswick is mature. With few exceptions, any new entrants in the marketplace are unlikely to precipitate an overall increase in either sales or bread consumption. Because of this, bakeries of all types will continue to struggle against one another to maintain their share of a mature market.

6.3 Development Opportunities

For these reasons the development opportunities for New Brunswick bakeries are exceedingly slim. A few opportunities are identified here, but as short term measures they will not affect the readjustment that is taking place in the industry.

- Development of bun-franchise type products by the large bakeries. A "me-too" type of product may help stop the erosion of sales, although the product would not be part of a "fresh daily" line.
- Acquisition of bun franchises. The bakeries may be reluctant to enter the retail field, but they have extensive knowledge of the industry and can generate new revenues for the overall economic health of their firms.
- Development of new products: Certain success stories are known in New Brunswick, including the introduction of pita bread and English muffins. With adequate promotion these and other ethnic and specialty breads can help contribute to increased sales and profit. Unfortunately large scale production by the larger bakeries would not be possible without a sizable increase in demand.
- Export sales. One N.B. firm has experienced encouraging results exporting bread to the American market. In this case, as with others which hope to succeed, quality was of primary consideration. The campaign did not succeed partly because the firm's resources were not large enough to sustain the

campaign while sales levels grew, but the potential for such a market still exists. - Ethnic breads. A considerable amount of ethnic bread is currently trucked frozen from central Canada for sale in the retail chain stores. There may be room for a small bakery producing these breads.

7. THE NEW BRUNSWICK MISCELLANEOUS FOOD PROCESSORS

7.1 Development Trends

The New Brunswick Miscellaneous Food Products companies are an eclectic mixture which manufacture all of the other products not examined elsewhere in this report. For the purposes of this strategy, this group of firms includes the confectionary, canned goods and sugar refiners although they normally constitute a separate grouping and are reported separately by Statistics Canada.

The miscellaneous grouping is one of the most important elements of the food and beverage industry. The New Brunswick Manufacturer's survey lists 12 companies which employ between 1,076 and 1,336 persons, or approximately 25 per cent of the sector work force (Appendix IX). Small companies make up only one-third of the number of firms. Four firms dominate employment in this grouping, providing 85 per cent of the jobs.

It is difficult to generalize about the companies in this grouping. First of all, there are no statistics published on the sugar refineries, canners and candy manufacturers due to Statistics Canada's confidentiality regulations. Secondly, the sampling of firms is so small (13 in the Department's statistics, 7 in those of Statistics Canada) that observations about trends can be

distorted by the performance of just one firm. Finally, the companies manufacture a wide range of products, so generalizations about markets, value added and productivity are difficult to make.

With the above-noted privisos in mind, certain observations can be made about the miscellaneous products grouping. (Readers are reminded that candy, sugar and canned goods are omitted from the Statistics Canada data used here because of the confidentiality provisions of the Act.)

This industry grouping has shown encouraging signs of growth, specifically in the number of firms and new employment (Appendix X). Canadian firms have increased in number by 8 per cent since 1971. The New Brunswick total has declined since 1971, but growth has begun again in the last three years.

The Canadian growth rate in the value of shipments was 199 per cent between 1971 and 1979 compared to New Brunswick's 114 per cent. Significantly, since 1975 the growth rate in New Brunswick has increased to a point where it now matches the national increase of 67 per cent.

The miscellaneous food products companies add a greater percentage of value added to their product than any other group. This amount ranged between 37 and 41 per cent in shipments in 1979.

Since 1971, the rate of growth in wages and salaries has been slightly higher in New Brunswick, but the average Canadian salary is significantly higher than the New Brunswick one, $16,735 versus $12,126.

7.2 New Product Research and Development

With the exception of canned Acadian specialities and bottled pickles, there is a common element which characterizes the companies of the miscellaneous food products grouping: They process raw materials which are not indigenous to New Brunswick. These products can and are being produced elsewhere in the country, but they are being produced in this province today because an entrepreneur identified a need - or a market - and concluded that his product could just as easily be made here, as elsewhere.

The miscellaneous food products group is the only one to show consistent growth across Canada. This theme of growth and innovation is present in New Brunswick as well. Four of the twelve companies in New Brunswick did not exist ten years ago.

It is difficult to synthesize the reasons for this growth. Indeed, if government knew the formula for this catalyst, it could have been applied to many other aspects

of manufacturing. What can be said about growth and development is this: An entrepreneur had an idea for a new product. With the help of a quality formula, a marketing plan and some venture capital, his idea caught hold and succeeded.

One of the objectives of the Department of Commerce & Development is to see that as many entrepreneurs as possible reach the production stage. In this regard, there are numerous government programs which assist new firms with product development, marketing and financial assistance.

There is a need to redesign and co-ordinate our approach to one of the three elements, new product research and development. The core of research facilities and programs is already in place. There are many examples in New Brunswick where research and development has been a catalyst for growth and new products.

The problems which appear to be hindering further research and development can be overcome. They include:

- A lack of appreciation for the importance of research and development
- A lack of knowledge about the programs and facilities in the Maritimes
- Problems with the regulations of certain programs which make it difficult for Maritime firms to qualify

- The cost of development work
- A lack of a central focus for research and development work in the food and beverage industry.

Research and development are critical to the long term success of the food and beverage industry. This is especially true for the Miscellaneous food products group.

8. FROZEN FOOD INDUSTRY IN NEW BRUNSWICK

8.1 McCain Foods

The processing component of the provincial frozen food industry is dominated by one firm. McCain Foods Limited employs between 1100 and 1700 persons in their two New Brunswick plants. This is approximately 30 per cent of the entire work force in the provincial food and beverage industry. They are a truly international corporation, with 12 subsidiary companies and 13 food processing plants which operate in 3 provinces and 7 countries. To better understand the scale of their operations, their world wide potato processing capacity is 328,000 pounds of potatoes per hour.

To be realistic, the provincial food and beverage industry strategy can offer little to such a successful corporation with considerable in-house expertise. The provincial government has been able to provide financial assistance in the form of direct loans to establish processing facilities.

The McCain success story is unlikely to be repeated on a similar scale in this province. The firm began in the late 1950's when the frozen food industry was in its infancy. Their New Brunswick base enabled them to capitalize on an underdeveloped source of raw product. The company has grown in stages, using strong marketing techniques and a commitment to high quality and plant productivity.

While their success continues, it is a success based on campaigns that are national and international in scope and beyond the capacity of most New Brunswick firms. If New Brunswick companies were to attempt to recreate the success of McCain, it would likely be on the basis of that firm's corporate philosophy (i.e., aggressive marketing, high quality, good productivity, sound management) and not based on large scale sales campaigns.

8.2 Constraints

There are a number of constraints which inhibit further expansion of the frozen food industry, especially, by a new entrant to the industry. As mentioned previously, these include:

- Insufficient primary production
- The prohibitive cost of new plant and equipment and
- The need for a full product line.
- The need for better plant utilization.

A new plant would likely have to be designed to process several products in order to lengthen plant usage and to achieve the necessary economies of scale. Such a plant would likely produce a base or "bread and butter" line as the foundation of the economic viability of the operation. Beyond that, other products would permit extended use of the plant and add to the company's product line.

Any plan to increase frozen food processing in New Brunswick will probably be as a result of an agreement between producers and the processor. There have been attempts to promote bean processing in Kent County and sufficient interest was present to plan production and grow a number of trial plots. A total of 550 acres is projected to be grown in 1983. It is anticipated that any new attempt to increase primary production for processing will be based on these Kent County resources.

A second method of achieving sufficient primary production would be to encourage growth in the fresh table market. There is some indication that the local fresh market has reached the saturation point. Export markets, if established, could lead to a gradual increase in production levels. The growth could take place in the absence of any processing decision, since its success would not hinge on such a commitment.

8.3 Development Opportunities

In the past there have been successful efforts to process blueberries with the use of a portable IQF unit in Moncton. While only blueberry producers participated in the initial testing, the opportunities for strawberry growers are just as attractive. There is little value added and little employment produced by this semi-processed product, but it can be seen as an initial

step toward both further processing and encouraging greater primary production. Already four firms have established processing or large scale production capacity in the Province. This can be expected to grow.

The establishment of an orange juice processing facility by McCain Foods supports the strategy's emphasis on the growing importance of non-indigenous raw materials for processing.

9. THE BEVERAGE INDUSTRY

9.1 Development Trends

The beverage companies of New Brunswick and Canada form a significant element of the food and beverage industry. Since 1971, the number of beverage companies has declined by 39 per cent nationally and by 45 per cent in New Brunswick, however, total employment has risen to the point that 11 companies now employ over 650 persons in virtually every part of the province (Appendix XII).

The 212 per cent increase in the value of shipments in New Brunswick has outstripped the national growth rate of 147 per cent over the same ten year period. Value added increased at a higher pace, too, until 1978 when the provincial total value added declined. This drop may be due to a distortion in the data caused by the small sampling of firms.

The drop in value added nationally affected the productivity figures. In general, productivity has tended to be lower in New Brunswick, but once again this can be largely attributed to the smaller production runs of the local bottlers and the higher transportation costs due to the long distances travelled.

Wages in New Brunswick have grown at faster rates than the national average since 1971, despite the fact that the average national salary is $18,607 compared with New Brunswick's $15,655. Unlike other food industry groups, employment has actually grown in New Brunswick.

The 10 year increase was 13.8 per cent, while the national increase was a lower 7.9 per cent over the same period. In addition, employment seems to be fairly evenly distributed among small, medium and large firms, although one firm accounts for 40 per cent of all employment.

9.2 Industry Self-Sufficiency

As part of national corporations or as bottling agents of internationally known firms and brand names, the New Brunswick bottlers have generally been self-sufficient. Advertising and marketing is most often controlled by the national office of the corporation and expertise on plant and equipment, if not provided by the parent, is generally available through equipment suppliers and franchisors.

This results in a degree of self-sufficiency and independence that is rather unique among the firms in this industry.

If necessary the Department can play a significant role of industrial advocate on behalf of some of these firms before the New Brunswick Liquor Corporation. These representations have dealt with matters such as the proposed sale of cold canned beer, which would have had a detrimental effect on New Brunswick brewers and packers. (Canned beer is not made in New Brunswick, and existing packaging suppliers would be hurt if bottled beer sales declined).

The health of the industry is important to the provincial economy. Although no indigenous New Brunswick materials are used in local beverages, the health of several packaging and glass manufacturers is directly dependant on the provincial beverage industry.

9.3 Export Potential

The success of Moosehead Brewery products in the United States has attracted a great deal of attention in the Canadian brewing industry. Moosehead beer is now the fourth largest selling imported beer in the United States and its Saint John plant has undergone several expansions in order to meet the increase in demand.

A similar but more modest attempt is under way to promote the sale of wine in the New England market.

It is unlikely that the same effort would be undertaken by any of the other firms. The Oland Brewery is the New Brunswick arm of Labatt's, and their export needs are met by other better known brands manufactured in Central Canadian cities. Soft drinks are bottled under franchise license. Combined with the delicate economics associated with transportation the possibilities for exports of soft drinks are virtually non-existant. The limited production and lack of brand identification associated with Acadia distillers' products, would render an export promotion difficult.

10. THE DEPARTMENT AND THE FOOD AND BEVERAGE INDUSTRY

This chapter examines three varied topics relating to the Department's role in the food and beverage industry: The services that we now provide, the myriad of services that are available from government in general and finally the relationship between producers, processors and this department.

10.1 Existing Programs and Services of the Department

The Department of Commerce and Development offers several programs which have helped the development of the food and beverage industry. They are summarized as follows:

Financial Assistance - Commerce and Development offers financial incentives to the private sector to assist with new plants, expansions or modernizations. Financial assistance can be provided through loans, loan or bond guarantees or equity participation. In the case of smaller industries, the Small Industry Financial Assistance Program (S.I.F.A.P.) is often applicable. SIFAP provides grants of up to $75,000 for new manufacturing industries and up to $45,000 for expansions or modernizations of existing plants.

Technical Assistance - The Department, through its own staff and private consultants, offers technical advice to small and medium-sized firms. This technical advice can cover a wide range of topics such as plant layout

improvements, advice on machinery types and sourcing, product development, technical missions, technical courses, productivity improvements and improved design and packaging.

Marketing Assistance - Commerce and Development offers marketing advice and assistance to firms manufacturing food and beverage products. This includes market intelligence reports, assistance with foreign or domestic market promotion, with the development of market plans and cost-shared assistance to reduce the financial burden associated with the implementation of a market plan.

Support - Commerce and Development supports the industrial sector and endeavours to represent its interests and reflect its views with government and private agencies whose activities affect the industry.

These programs and services have been used frequently by food sector companies. They will continue in the wake of this strategy. They are flexible programs, thus enabling a quick response time and a wide variety of applications to company proposals.

During the past year alone, these programs have resulted in the establishment of new companies and products, in the meat and specialty food fields, generated large sales orders through participation in trade shows,

exposed workers to technical training in boxed beef production, feed mill operations and sugar refining. In addition several companies completed packaging and label revamping resulting in enhanced recognition and sales.

The Marketing Assistance Program in particular has been very effective. Additional emphasis will be placed on improved program delivery, but the essential elements of the program have been effective and will continue in effect.

As a result of this strategy, certain new initiatives will be undertaken. These are discussed in greater detail in Chapter 13, the summary chapter of the strategy.

10.2 Delivery of Government Programs

Government programs are continually being devised and redesigned to assist industrial development in New Brunswick and elsewhere. Perhaps because of the number of programs, the number of departments and the different levels of government, it often becomes difficult for businessmen to sort out which programs are available and which agency one should turn to for assistance. Frequently, comments about government assistance speak of

- lack of knowledge about the assistance that is available
- being unsure about which department or government to approach

- getting "lost between the cracks" when two or more agencies are involved in a matter
- duplication of services and contact by officials from the same department or government.

To be fair, these comments are not unique to any one sector and are raised from time to time in discussions relating to government services. The very nature of our federal system of government results in many of these types of remarks.

Certain modifications will be made to the Department's development efforts in order to minimize or eliminate these occurrences.

The first proposal will result in the publication of a pamphlet which outlined in plain English the types of programs and services which are available to the food and beverage industry. The emphasis in this publication will be on opportunity development and problem solving, not program titles, funding agencies and organizational structure.

The following tables demonstrate the wide variety of services that government can offer to the food and beverage industry. The list of programs, acronyms and numbers listed along the top of each table as varied. Funds are provided by both levels of government, sometimes on a joint basis.

It would be much easier to promote these services as part of our development efforts, even though the programs providing the funds may be federally controlled. By the same token, businessmen are more apt to remember that governments provide assistance for energy conservation expenditures, rather than recall the names of the five energy conservation programs and the federal and provincial agencies which fund them.

Table Seven

GOVERNMENT ASSISTANCE TO THE FOOD AND BEVERAGE INDUSTRY I

PROGRAMS	IRAP NRC	PDMP ITC/CD	Commerce & Development	Agriculture Canada	TAS ITC	New Products Bulletin ITC	IRDP - (DREE/ITC)	FBDB	Small Business Loans/ITC	RPC
SERVICES										
NEW PRODUCT DEVELOPMENT										
a. Identifying New Products		x	x				x			
b. Product Development Costs		x	x				x			
c. Product Design Grants		x	x				x			
d. Long Term Applied Research	x			x			x			
e. Technical Investigations and Problem Solving	x		x	x						x
f. Production Planning		x								
g. Troubleshooting Advice	x		x	x	x					
h. New Product Information						x				
i. Protein, Oil and Starch Products Development				x						
PRODUCTION/FINANCIAL ASSISTANCE										
j. Plant Layout/Design	x		x							
k. Plant Expansion: Financial Assistance, Grants, Forgiveable Loans			x				x			
l. Loans			x					x	x	
m. Loan Guarantees, Insurance			x				x			
n. New Crop Development Funds				x						
o. Physical Distribution Advisory Service							x			

GOVERNMENT ASSISTANCE TO THE FOOD AND BEVERAGE INDUSTRY II

PROGRAMS	IRAP NRC	Commerce & Development	Agriculture Canada	IRDP - DREE/ITC	RPC	PDMP ITC/CD
SERVICES						
MARKETING ASSISTANCE						
a. Market Planning, Implementation		x		x		x
b. Trade Promotion		x		x		
c. Public Sector Marketing		x				
d. Foreign Billing, Incoming Buyers, Export Consortia, Sustained Market Development				x		
e. Special Initiatives		x		x		
IMPROVING EXISTING PRODUCTS						
f. Package Redesign		x	x			
g. Improved Products, Processes	x	x	x	x	x	
h. Grants for Product Design, Development		x		x		

GOVERNMENT ASSISTANCE TO THE FOOD AND BEVERAGE INDUSTRY III

PROGRAMS	IRDP - DREE/ITC	IRAP NCR	Commerce & Development	FBDB	RPC	National Energy Audit Program/ EMR	COSP/EMR	Canada/NB Demonstration Program	AECIP EMR	CASE	ARMTC	CEIC	Technical Information Service NRC	ERDAF Agriculture Canada
SERVICES														
ENERGY CONSERVATION														
a. Auditing Energy Usage					x	x								
b. Technical Advice					x								x	
c. Consulting Advice						x								
d. Conservation and Retrofit Assistance							x	x	x					
e. Research and Development Studies														x
TRAINING AND DEVELOPMENT														
f. Management Training			x	x						x	x			
g. Short Course/Technical Training			x									x		
h. Technical Missions			x											
i. Productivity Studies	x		x											
j. Undergraduate Apprentices		x												
MANAGEMENT ADVICE														
k. Management Advice			x							x				

Glossary of Acronyms

Acronym	Explanation
IRAP	Industrial Research Assistance Program sponsored by the federal National Research Council
NRC	Federal National Research Council
PDMP	Product Development Management Program, jointly sponsored by the federal Department of Industry, Trade and Commerce and the provincial Department of Commerce and Development
CD	Provincial Department of Commerce and Development
TIS	Technical Information Service sponsored by the federal National Research Council
TAS	Technical Advisory Service sponsored by the federal Department of Industry, Trade and Commerce
FBDB	The Federal Business Development Bank
RPC	The provincial Research and Productivity Council
EMR	The federal Department of Energy, Mines and Resources
COSP	Canadian Oil Substitution Program
AECIP	The Atlantic Energy Conservation Investment Program
CASE	Counselling Assistance for Small Enterprises program sponsored by the Federal Business Development Bank
ARMTC	Atlantic Region Management Training Centre, sponsored by the four Atlantic Provinces
CEIC	Canadian Employment and Immigration Commission
ERDAF	Energy Research and Development in Agriculture and Food
IRDP	Industrial and Regional Development Program
DREE/ITC	Department of Regional Economic Expansion and Industry, Trade and Commerce

Another element of this plan will emphasize that departmental staff serving the food industry are the source of expertise on every government program available to the sector. In this regard, food processors, either directly or through their Regional Industrial Commissioners, will know that an approach to the Department will result in prompt follow-up, assistance or referral, as the situation warrants.

In addition to these measures, two bodies will be established within the Government in order to ensure a co-ordinated development effort. The first is a joint planning committee composed of officials from the departments of Agriculture and Rural Development and Commerce and Development. There are many government initiatives undertaken in the agri-food industry which touch on the concerns of both departments. There are also a number of areas where the jurisdictional line between departments is grey and undefined. The planning committee has been established, thus enabling the government to approach agri-food development in a co-ordinated fashion.

The second group to be formed is an intradepartmental committee composed of staff who work with the food industry and staff from various divisions who have a continuing interest in food and beverage companies. The group would include, but not be limited to the Project

Development, Small Industry, New Industry and Planning Divisions. The Committee would meet from time to time to review contacts with and development prospects for the Food and Beverage industry. Other officials would participate as required.

A further note about government programs. As the government's advocate for industry, the Department of Commerce and Development is interested in seeing that government programs work to serve industry in an efficient manner. In this regard, the department will endeavour to provide a quick turn around for project proposals that are under its jurisdiction. Often, the same cannot be said for other government programs. Businessmen justifiably complain about program criteria which are inappropriate for Maritime conditions, lengthy project approval time and complicated compliance regulations.

The Department has made and will continue to make representations to the agencies in question. Our goal is to make these programs as streamlined as possible, with a minimum amount of red tape. Only through case documentation and continued representations can the problem of inefficient program delivery be rectified.

10.3 Producers, Processors and the Role of the Department

Not enough attention has been paid to the state of relations between producers and processors and the effect of those relations on the growth of the industry. It is fair to say that a great deal of suspicion and mistrust pervades the system, often to detriment of the continued growth of the food and beverage industry.

Mr. Justice W.W. Leach highlighted the problem in a recent Royal Commission of inquiry in Ontario. Although his mandate was to examine discounting and allowances in the industry, he saw fit to include a chapter on the lack of co-operation between the industry's major participants. Judge Leach said,

> "Although the producer, processor, wholesaler and retailer all depend on each other for success in the food industry, they appear to adopt an adversary position toward each other ... one can expect differences of opinion between buyers and sellers, but the evidence indicates that animosity extends beyond this point ... The Federation (of Agriculture) is not convinced that there is real competition in prices ... The Grocery Products Manufacturers ... feels that suppliers may be intimidated by the chains and their market power ... Many small retailers are confused about rebates ... Many ... resent marketing boards and express the view that they cause an increase in the price of regulated farm products ..."[5]

The Commission recommended that a forum be established "where the various levels of the food industry can meet in a constructive manner to resolve problems arising in the industry."[6]

Similar thoughts were expressed recently by George Fleischmann, president of the Grocery Products Manufacturers of Canada. He observed that "we need more consultation and co-ordination between the different levels of the food industry: farmers, wholesalers, retailers and government. For example, farmers should get decent incomes, but how they should be protected is something that requires discussion with the rest of the industry. Sometimes decisions are taken by one link in the chain without taking into account their possible side effects[7]."

These and similar comments were heard from New Brunswick businessmen during the consultations that went into the preparation of this strategy. It is because of this continuing friction that the strategy proposes the establishment of a New Brunswick Food and Beverage Industry forum. The structure of this forum is flexible, but it should be devised in such a way that it could effectively address a number of issues:

- Co-operation between producers and processors
- The need for joint planning in the industry
- The responsibility of marketing boards for continuing growth - beyond their current role of price/supply management
- Retail chains, allowances and the food processors
- New crop development
- New processing facilities
- Training and development in the industry
- The use of research facilities

11. RESEARCH AND DEVELOPMENT OPPORTUNITIES

11.1 The Need for Research and Development

The New Brunswick food and beverage industry must be innovative if it is to grow in the next decade. The "importance of research and development" was one of the themes that was consistently mentioned by those interviewed for this strategy. The goal of that research must be to identify and develop new products and to make sure that they, along with existing products, are of the highest quality.

New products are needed. One major New Brunswick firm estimated that 23 per cent of their total sales came from products, which had been developed within the preceding 10 years. Those new sales were required just to maintain traditional patterns of growth. To give an idea of the extent of the new product development, 53,000 new food products were introduced in North America during the 1970's, an average of over 14 per day.

New packaging techniques can be a critical factor in a product's success. Convenience, cost, storage life and attractiveness are all considered important elements of packaging development. Packaging research must be included in the research and development plans of the firm.

Research and development is needed to ensure that New Brunswick products are of the highest quality. Spotty or uneven quality is a recipe for disaster, since it can result in lost sales, returned product and loss of reputation. Once obtained, a poor reputation can take years to overcome.

Innovation, although important, is soon easily copied. Top quality - expressed as good value for money spent - will usually help a company to maintain or increase its share of the market. Part of the emphasis of research and development then should be to consolidate a company's strengths by improving products already in the market place.

A third formula for successful development is directly related to product research and to market intelligence. Specialization has been used by several New Brunswick firms to carve a niche in the market place and lessen their exposure to highly competitive, low margin fields. Whether it is a national or regional specialization, these firms have thrived because of their ability to pick and choose a specialized product line.

11.2 Research and Development Today

Research and development work in the industry is undertaken on a piecemeal and ad-hoc basis. In New Brunswick, a few large firms have developed ongoing research programs. These programs are backed up by full-time staff and laboratory facilities and by consultants who provide special expertise, as required.

A second category of firms includes those that have small laboratories, mostly for quality control purposes and sanitary testing. They may or may not do a small amount of new product development, but staff are mostly concerned with quality control. There is a heavier dependence among these firms on outside consultants for any extensive testing.

A third category includes those firms which have no laboratory facilities and no on-going research and development plans. New products are developed in kitchen-scale batches and through trial and error methods. Problems very often arise only after the product has been placed on the market and product improvement becomes a patching or "fire fighting" exercise. In many ways, these firms are in the most need of - but have the least appreciation for - product improvement.

Among all of these firms, provisions for pilot scale testing of new products is of critical importance. Agriculture Canada's Research Station in Kentville, Nova Scotia is a regional facility with piloting capabilities. It is possible that RPC could undertake such work in the wake of an expanded mandate. To date, very few New Brunswick companies have made use of both organization's services, in part due to the low level of research activity in this Province.

11.3 Current Government Efforts

Currently, five government agencies provide research and development assistance through a variety of programs to the Food and Beverage industry in New Brunswick. Some of these programs are well-designed and well-used by the industry. Others are not.

The following is a critical analysis of these programs. The benefits and criteria of each program are described, along with a description of the practical problems (if any) associated with the program. With a better understanding of these problems, the chapter ends with an alternative proposal to the status quo.

11.3.1 Enterprise Development Program (EDP) and Industrial and Regional Development Program (IRDP)

The Enterprise Development Program was sponsored by the former federal Department of Industry, Trade and Commerce. Its purpose was to encourage innovation in new or improved products among the small and medium-sized firms which undertook high risk projects. Normally assistance was provided in the form of a contribution, which could be as much as 75 per cent of the project costs.

Grants were available for consultants to prepare proposals, for the identification of new products, for product development costs, product design and productivity improvement.

EDP was not successful at promoting development work in the sector and indeed, EDP has not been used widely at all in this Province.

All Sectors

EDP 1973-1978

Province	Number of Projects	Funding
New Brunswick	2	$ 55,132
Ontario	70	$17,143,138
Quebec	68	$ 3,554,646

EDP Adjustment Assistance 1973-78

Province	Number of Projects	Funding
New Brunswick	-	-
Ontario	36	$78,546,500
Quebec	22	$18,161,100

New Brunswick's share of EDP funds expressed as a percentage of Ontario and Quebec's share amounted to .05 per cent. Based on the provincial population, New Brunswick's share would have been $5,500,000. Only one project was ever approved for a food sector (non-fish) company in New Brunswick.

There were several problems associated with EDP. It was a complex program with extensive criteria and guidelines. Often, consulting firms would have to be engaged to prepare proposals because they were familiar with the program guidelines. In other instances, unsolicited proposals were presented to firms by consultants. Such an approach might be acceptable in Central Canada, but few New Brunswick firms could afford the expense and time, and local consultants have not engaged in this type of activity.

The approval time for EDP was estimated from six to ten weeks, once the proposal was prepared and submitted. This could interfere with a firm's plans to proceed quickly with a project, especially those smaller firms with limited resources as in New Brunswick.

In 1982, the Department of Industry, Trade and Commerce was amalgamated with the Department of Regional Economic Expansion. In 1983, DREE/ITC announced the establishment of the Industrial and Regional Development Program (IRDP) which incorporates the former Enterprise Development Program and several other industrial development programs.

The IRDP program differs from EDP in several ways. IRDP assistance is geared to the local economic conditions of the census district.* Highly disadvantaged communities enjoy preferential status under the program and entrepreneurs within those districts will receive more generous industrial assistance than those in other districts. In addition, local officials now have considerable IRDP approval authority, which is designed to speed up the approval process. Finally, IRDP has a standard application form which is designed to simplify the application and approval process.

It is still not known whether these administrative changes will result in improved assistance for New Brunswick companies. A preliminary assessment cannot be made for at least six months. If IRDP is successful, it will have an important effect on federal spending performance and on programs which are currently offered by the Department of Commerce and Development. Until the results of the IRDP initiatives are known, no change will be made in departmental programs.

* In New Brunswick, the census districts correspond with county boundaries.

11.3.2 Industrial Research Assistance Program (IRAP)

This program is sponsored by the federal National Research Council (NRC) and consists of six program elements, all of which have applicability to the food and beverage sector.

IRAP-C, the Field Advisory Service provides information and guidance on industrial engineering techniques. This program is implemented by the Research and Productivity Council (RPC) in Fredericton on behalf of the NRC.

IRAP-F, the Technical Information Service, helps industry solve their technical problems. The service operates by telephone and is free and confidential.

IRAP-H, makes contributions to firms employing undergraduates. It pays the salaries of post secondary students who aid small firms with manufacturing problems. This program is annually oversubscribed because of its popularity.

IRAP-L, is also known as Contributions to Laboratory Investigations or CLIP. It provides financial assistance to small firms to permit them to contract problem solving investigations to the appropriate consulting services. This component is often utilized by firms which bring technical problems to RPC.

IRAP-M, formerly called Mini-IRAP, makes contributions to firms to solve small technical problems, with the help of either their own staff or outside consultants. The assistance is used for salaries and benefits and is limited to $30,000 over 12 months.

IRAP-P, is designed for contributions to large projects, usually two to three years in length. Once again, contributions are made toward salaries and benefits.

Until recently, New Brunswick firms were not using their share of funds allocated under IRAP. With the active pursuit of IRAP proposals by NRC field representatives located at the Research and Productivity Council, the use of NRC programs has grown. (This is a good example of the effect that organization and the promotion of programs can have.) Of particular importance to New Brunswick companies are IRAP-C, IRAP-H, IRAP-L, and IRAP-M. In general, New Brunswick firms tend to be too small to have the kind of extensive research and development program that would lead them to use the more comprehensive IRAP-P component.

11.3.3 Product Development Management Program (PDMP)

This is a federal-provincial program funded by the New Brunswick Department of Commerce and Development and the federal Department of Industry, Trade and Commerce. It provides between 75 and 90 per cent of the project costs,

up to a maximum of $15,000. Eligible costs include feasibility, design, planning, market research and research and development studies, models and prototypes, product specification development, testing and industrial graphic and package design.

In many ways, PDMP resembles a more modest version of EDP. Until recently, it was a less bureaucratic program and provided a quicker decision making response. Recently, however, new federal procedures were instituted, requiring extensive contractual arrangements between government and industry and have made the approval procedures complicated. In addition, it was oriented towards design changes, prototype testing and product specifications, which resulted in a bias toward manufactured goods rather than processed products such as food.

11.3.4 Agriculture Canada Food Processing Research

The Kentville food processing research facilities at Agriculture Canada are among the most modern in Canada. The Department undertakes primary research and provides assistance in a number of fields to private firms. Their research strengths are in new packaging methods and low energy processing systems.

While simpler services are free, large scale research projects would normally require a contribution from the company of either funds or an equivalent contribution of staff time.

The research centre can be especially helpful to firms contemplating industrial expansion. Advice can be provided on a wide range of food technology concerns. Very often cost-sharing opportunities are overlooked because the processing expertise at Agriculture Canada is not used before plant expansions and processing changes are undertaken.

11.3.5 Research and Productivity Council

The Research and Productivity Council is a crown corporation established by an Act of the New Brunswick Legislature in 1962. In the 1980-81 annual report, it is stated that "RPC carries out research, problem-solving and consulting on a cost-recovery basis for clients in Canada and abroad." These statements represent the contradictory elements that characterize RPC - although it is supposed to be the provincial research arm of the government, it has evolved into a consulting agency dependent on obtaining contracts for its livelihood.

There will always be drawbacks to the "service for fee" approach. It limits the use of RPC by smaller firms who most need to undertake development work, but can least afford it. It forces RPC to seek contracts from any quarter, in order to meet its fixed operating costs. As a result of this, research work becomes reactive. It does not necessarily procced in the most promising directions, but in the direction of those clients who can afford to

pay. When contract work falls off, it results in an underutilization of RPC's facilities, which could lead to an accompanying cutback or restriction in hiring and investment in plant and equipment.

11.4 A Research and Development Fund for the New Brunswick Food and Beverage Industry

Despite some of the problems which have been identified, New Brunswick does have a solid foundation of facilities and programs on which to build a stronger research and development program. But gaps remain and few companies have taken steps to establish development programs. For this reason, the Department will endeavour to establish a research and development fund for the New Brunswick food and beverage industry.

The goal of the fund is to encourage increased activity in new product research and in development, resulting in increased value added, new products, increased productivity and long term viability in the industry.

The research and development fund will require a reallocation of funds from within existing industry assistance programs. With numerous demands being made on the provincial treasury, new budget allocations for discretionary projects have been ruled out.

The fund would be administered by the Department of Commerce and Development. The Division would have the final say in any program or budget decisions. The

Department would be assisted by an advisory group which would provide advice on research proposals, help identify an appropriate research agency to carry out the work and suggest an allocation of funds, if required.

The fund would either supplement existing programs or would establish a vehicle to support costs which are not eligible under existing programs. At the present time, problems do exist. For example, in one case a program has not been used because local firms did not or could not easily qualify for assistance. It is not known whether the program designed to replace it will be an effective development tool. In another case, the Program in question has become excessively bureaucratic and has a bias against food products. In a third, the funding is limited and promotion is thus limited to keep expenditures within budget. In yet another case, the existing program does not pay for the cost of equipment, often limiting the use of the program.

Private industry would initiate research proposals under the Fund. The advisory group would recommend the optimal mixture of programs, facilities and supplements that would bring a project to fruition. The private sector proposal would be treated in strictest confidence.

The Advisory Group will likely consist of those agencies which offer either programs, research facilities or have an interest in the development in the industry.

The priority will be that existing programs (IRDP, IRAP, L-M-P, Agriculture Canada Research Centre) are used first. If a program is missing certain key elements, or there are no applicable programs, the Fund will be used to see that the project goes ahead. The emphasis will be on a quick response time by the advisory group. Telephone conferencing would not be ruled out.

The organization of such an advisory group will be challenging. Most of the participants have never worked together before and there is likely to be an inherent amount of professional rivalry. It will be the role of the Department to convene this group and to encourage a co-operative approach to research and development in the industry.

A second element of the fund would see funds made available for directed research at RPC. At the moment the strengthening of research capabilities at the Research and Productivity Council will depend on operational changes suggested by consultants, which are currently under consideration by the Council. These proposals would see an increased emphasis on service to New Brunswick firms, by providing assistance to the Council to reduce the overall cost of its services to manufacturing firms. In addition, research and development projects would be undertaken by the Council, based on provincial needs and

on promising leads into chronic industry problems. A more secure revenue base at RPC would enable it to devote more time to development work, upgrade its laboratory and engage new staff.

If these major recommendations are implemented, the second element of the research and development fund could make funds available for directed research at RPC. In return for a contribution from the Fund, RPC will be asked to undertake directed research into certain problems or opportunities associated with the New Brunswick Food and Beverage industry. This research will be overseen by the Fund's advisory group, with the greatest emphasis placed on those needs identified by representatives from industry. These industrial officials will be asked to participate in the advisory group for this purpose. The Fund will be used only when long term or applied research programs are not available. (These include ERDAF, protein, oils and starch, Development Program and Supply and Services Unsolicited Research proposals.)

The contributions to RPC will be subject to renewal on an annual basis. They will enable RPC to make optimum use of its facilities, to obtain new personnel and to upgrade plant and equipment.

12. TRAINING AND DEVELOPMENT IN THE FOOD AND BEVERAGE INDUSTRY

12.1 The Need for Training and Development

There are no food science technology courses currently being taught at universities and community colleges in New Brunswick. At the same time, industry officials do not appear to be overly concerned about a lack of skilled workers in the industry. The question then arises, why mention training and development needs if there appear to be no pressing problems?

It is apparent that if research and development and quality improvement programs are to be undertaken by the food and beverage industry, then skilled food science personnel will be required to design and implement those initiatives.

Officials from the Department have examined the food science personnel who are employed by 18 of the largest firms in the food and beverage industry. Several fish processing firms were included in this analysis. Of the 18 firms in question,

- 14 of the eighteen had no ongoing research and development program
- 5 of the eighteen had only limited quality control programs and one had no program at all.

These are examples taken from the largest firms in the Province. In fact, most New Brunswick firms pay only lip service to quality control. Most could not conduct a proper product recall if they were required to do so by regulatory officials. Those firms that do have quality control personnel often hire people with the wrong kind of training: A home economist instead of a food science technologist, a biologist instead of a microbiologist, an electrical engineer instead of a chemical engineer.

The challenge facing the food and beverage industry is to adopt new product and quality assurance programs that enable New Brunswick to compete against competition from other provinces and countries. Government must do their part by making sure that an adequate number of food science graduates are educated to conduct these programs in the Province's factories.

Just how many of these graduates will we need? If the company is to follow a program of new product development and quality assurance an optimal target would be one first line supervisor for every 50 employees and one technician/technologist for every 100 employees. In addition, foremen and plant managers should have at least rudementary knowledge of food science.

In 1981, there were 47 firms in the food and beverage and fish processing sectors which employed more than 100 persons and 23 which employed more than 200. Based on the

optimal employment guidelines, this would result in the employment of 70 technician/technologists and 140 first line supervisors in the New Brunswick food and beverage industry.

The Kirby Task Force on the Atlantic Fishery has also written on the importance of first line supervisors. They see the targets listed above as conservative. In their words

> The training and commitment of first line supervisors is essential. The ratio of supervisors to lineworkers should be in the order of one to fifteen or twenty. The Newfoundland Royal Commission reported that during the peak inshore season the ratio may fall as low as 1:100. Even the best trained cannot be effective under such conditions.

Based on the Kirby recommendations, the need for trained personnel rises to 350 trained technicians/technologists and 700 trained first line supervisors.

In addition to these requirements, there would be a need for university trained food engineers, food chemists and microbiologists. This would depend on the intensity of the development program that a firm undertook and the extent to which they used such specialists already employed by RPC, Agriculture Canada and private consulting firms.

12.2 Food Science Training Today

As was mentioned earlier, there is no food science training in the Province at the present time. Elsewhere in the Atlantic provinces three universities offer or plan to offer post-secondary programs. The Technical University of Nova Scotia offers graduate programs with special emphasis on fish processing and Acadia University has plans to begin an undergraduate program soon.

There is no French language program in the Maritimes. With the large number of francophones in the fishing industry and the increasing emphasis on upgrading fish processing, the lack of francophone food science training is cause for concern. An earlier attempt to establish such a program at the University of Moncton failed. The University has solid chemistry, engineering and home economics faculties on which to base the foundations of a program.

In recent months, the University and the Maritime Provinces Higher Education Commission have recognized the need for a Food Science program in Moncton. The program is now on the Commission's list of priorities and is tentatively scheduled for introduction in September 1984. Much development work remains to be done, but the recognition is there and planning should begin immediately.

12.3 Recommendations

The Department of Commerce and Development recommends that planning begin immediately toward the goal of starting an undergraduate program in food science at the University of Moncton in September 1984 and a two year food technologist/technician program at the New Brunswick Community College.

Moncton is a logical site because most of the expertise needed to establish an undergraduate program is already in place. In addition, the need for francophone food science training is acute, especially because of the large number of francophones in the fishing industry. The university program would also be able to support the establishment of the community college programs, with officials from both institutions sharing information and expertise on food science concerns.

The University has announced plans to proceed quickly with a Food Science program. The Department strongly endorses this program and will provide support to the University in its efforts to secure funding from the appropriate government agencies.

The Community College program, for that reason could be established at either the Moncton or Southeast campuses of NBCC, but would have to be available in both English and French. It would be a two year co-operative program, with students gaining practical knowledge through their

exposure to industrial situations. The first year of the program would be common to both food technologists and food technicians. During the second year, technologists would receive in-plant training and technicians would be exposed to practical laboratory work.

It is also recommended that food science training be seen as a career option, with the possibility for student to follow an avenue of programs which are linked through the post-secondary system. In this regard, students could be trained during a one year program, could upgrade to the level of technologist/technician in the second and could eventually go on to the university level for a career in food science development, with sufficient credit having been given for their work at the Community College level.

13. SUMMARY OF STRATEGIC POLICIES AND PROGRAMS

13.1 General Forecast

The food and beverage industry has reached a critical point in its development. If the sector is to reverse a trend towards stagnation in employment and the number of firms, changes will be required in the economic climate and the foundations which support the industry.

Food processors will have to continually improve their productivity and efficiency in order to remain competitive. Co-operation between the primary sector and food processors will be required as never before if increased production is to be translated into new processing capacity.

The food and beverage industry has been largely shielded from the effects of the current recession. Still, the high cost of borrowing and the purchasing habits of value-conscious consumers have had an effect on the industry. With the return of the economy to some semblance of economic normalcy, new growth can be expected.

It is difficult for governments to forecast where growth in the industry will occur. In previous chapters, an attempt has been made to identify those products which present opportunities for further processing growth. Such a list based on indigenous materials, would include

specialty, luncheon and sliced meat products, milk powder and butter (based on recent proposals), specialty breads on a small scale and small frozen fruits such as strawberries and blueberries. In the realm of miscellaneous food products the potential for new products is virtually unlimited This is where most growth has occurred in recent years.

13.2 The Approach to Food and Beverage Sector Development

The development strategy recognizes that growth will be largely confined to certain product groupings and that some parts of the industry are mature. The potential for growth exists, based on the following strategic approach:

- encouraging cost reduction and productivity improvement measures in the industry
- building a strong foundation on which to encourage research and development work
- encouraging communication and industrial planning between the primary and processing sectors
- continuation of existing support programs, with a more effective use of all government programs
- a movement away from traditional thinking that growth will depend entirely on the local primary sector
- increased awareness and profile of government services.

No single group or government is able to accomplish these goals through independent action. It will require a co-operative approach through plant owners, employees, producers and their representatives and various government agencies. The department is ready to fulfill its role in co-operation with these other interested parties.

13.3 New Food and Beverage Strategy Initiatives

In addition to the existing measures outlined in Chapter 10, specific initiatives are planned to improve productivity and to introduce cost reduction measures.

Increased emphasis will be placed on problems caused by poor plant layout and design. The work of the Technical Services Officer and the NRC's Technical Information Service field representatives will be supplemented by funding under the Department's Product Development program. The Department will cost share in projects and provide technical assistance aimed at cost reductions through improvements to production bottlenecks and plant layout. Initially, this expertise may not always be available locally, however, the Department will require the participation of local consultants in such studies in order to strengthen the local consulting expertise.

This program will also be expanded to cover problems relating to distribution systems. As a supp[illegible] to the Production and Distribution Advisory Servi[illegible]ble through DREE, cost shared contributions w[illegible]vailable in order to rationalize warehousing, inventory and distribution systems.

Energy costs represent one of the few costly variables or inputs that can be reduced and then controlled. Energy's contribution to the cost of production in the food and beverage industry has risen by 45 per cent in four years. It shows no sign of abating.

While a national program to reduce energy consumption in the industry has been in place for several years, most New Brunswick firms have not participated. The Atlantic Energy Conservation Investment Program which was designed to provide funds for conservation investment has not been used by food and beverage firms.

The Department will endeavour to address this problem by arranging a comprehensive energy audit pilot. Ten firms will be asked to participate and will undergo mobile energy audits. This will be followed by detailed audits and design work undertaken by qualified consultants and cost shared under the Consultant Assistance Program. The firms will then be encouraged to follow up by submitting applications to the A.E.C.I.P. program.

Microelectronic support systems present another opportunity for firms to reduce costs and increase productivity. Attractive programs are in place which provide funds to study the feasibility of introducing microelectronics in the firm. The Department will promote these programs and will organize an industry seminar on the introduction of these systems, in conjunction with suppliers, consultants and other agencies. Specific programs may follow depending on the need and whether existing programs are adequate.

Strategic efforts are planned to establish an improved climate for applied research, quality assurance and new product development. There is a strong relationship between an innovative development climate and the existence of research facilities, trained personnel and support programs. Unless this "critical mass" of elements is present, a successful research and development climate will be difficult to achieve.

For this reason the Department will establish the New Brunswick Food and Beverage Industry Research and Development Fund. It will provide funds for costs not covered by existing programs and will, if required, enhance the benefits of those programs in order to promote new development activity. It will also improve the capabilities and capacity of RPC to conduct applied and company-specific development work.

The Department will also work with university and community college officials to ensure the establishment of food and beverage research and training programs in New Brunswick. This will include strategic planning efforts to document the need for such training and might include funding for curriculum development work, a chair in food science or scholarships.

The existence of sound, well trained management personnel in New Brunswick industry has been an important priority for the Department. Management personnel, like any other professional group, require continual exposure to new ideas and systems if they and their firms are to grow and remain dynamic.

The Department has commissioned a survey on training needs of the Food and Beverage industry in New Brunswick which has now been completed. As a result of that survey, management training courses will be offered in the areas of greatest interest that were identified by industry. These include Operating and Performance Problem Solving, Planning and Scheduling, Management Techniques and Sales and Marketing.

In addition to this service, the Department's Management Services Division will provide advice on the improvement of accounting, cost control and other business systems and provide funding for the use of outside

expertise, when appropriate. This will require the establishment of a Management Services budget within the Food Division.

Elsewhere in this strategy the need for effective communication between the primary and processing sectors has been stressed. The need for communication and co-operation should be apparent. Joint planning will be required if the processing of indigenous products is to increase. In addition, the participation of producer representatives and boards is needed if we are to overcome some of the growth-inhibiting effects of "supply management". Other issues such as retail allowances, new crop development, new processing techniques, training and development and new research facilities are logical for a producer-processor forum to discuss. For this reason, the Department will work with industry and producers to establish the New Brunswick Food and Beverage Industry Forum, a forum where these and other issues can be discussed and, ideally, resolved.

A critical and final element of this strategy is a change in the method which government services are promoted. In the past, there has tended to be a lack of knowledge about government programs and a confusion over which level of government should be approached. In order to help overcome these problems, several initiatives will be implemented by the Department. The first is the

publication of a food program pamphlet emphasizing the services which are available from all types of government programs. A second element is the commitment that departmental officials will have an expertise on all government assistance programs and will be able to provide one-stop assistance and referral to interested firms. Finally, the Department will maintain regular contact with every firm, in order to provide them with information on technical developments, government programs and general assistance. This will likely require extensive and direct contact with the companies.

APPENDIX I

RESOURCE PERSONNEL

The following people were consulted in the preparation of this strategy:

Company/Agency	Official(s)
Agriculture Canada	Bob Stark Louis Phillippe Albert
Baxter Dairy Ltd.	Archie Cook Allan Fraser
Canada Packers	Colin Farnum
Department of Agriculture and Rural Development, New Brunswick	Wayne Parlee Peter Schousboe
Department of Commerce and Development, New Brunswick	Gilbert Ouellette Larry Marshall Sat Lalla Kevin Malone Len Weeks Planning Division
Department of Industry, Trade and Commerce, Canada	Jean Richard
G. E. Barbour Company Ltd.	Ralph Brenan
Karnes Bakery Ltd.	Pat Karnes
Nadeau Poultry Ltd.	Rino Volpé
National Research Council	John Jaffray Bert van den Berg
New Brunswick Milk Marketing Board	Earl DeMerchant Lucille Reidle
Research and Productivity Council	Gordon Brown Ian Currie Bob Reid Vivian Neal
University of Moncton	Regina Robichaud Sadek Eid

APPENDIX II

MANUFACTURED - PREPARED FOOD MATRIX

Standard Industrial Classification		Raw Material	Products
1010	Meat and Poultry Products Industries	Beef	Pies
		Pork	Sausages
		Rabbit	Bologna
		Veal	Salami
		Chicken	Sausage - prepared
		Turkey	Smoked meat
			Bacon
			Ham
			Frankfurters/Weiners
			Frozen meat
			Chilled meat
1030	Fruit and Vegetable Processing	Potatoes	Fresh
		Beans	Frozen
		Brussel Sprouts	Canned
		Carrots	French fries
		Peas	Dehydrated
		Tomatoes	Baked
		Mushroom	Jams, jellies
		Bean Sprouts	Preserves sweets
		Broccoli	Preserves, pickles, chows, apples, processed
		Blueberries	

Standard Industrial Classification		Raw Material	Products
1040	Dairy Product Industry	Milk	Milk
			Milk beverages
			Yogurt, butter, milk
			Cheese, sour, creamed spreads
			Butter
			Ice cream
			Ice milk
			Cream
			Creamers
			Popsicle
1070	Bakery Products Industry	Flour	Bread, rolls
			Pasteries
			Pies
			Muffins
			Cakes
			Cookies
			Biscuits
			Doughnuts
			Pizza pies
			Bread crumbs

Standard Industrial Classification	Raw Material	Products
1080 Miscellaneous Foods	Sugar	Candies
	Chocolate	Candies assorted
		Chocolates
		Confectionery (sugar preparations)
		Refined sugar
		Mollasses
		Sugar, liquid
	Coffee	Coffee
	Tea	Tea
	Peanuts	Peanut butter
	Spices	Spices
	Vegetables	Spices, seasonings
	Fruits	Spice extracts
	Flour	Extracts, flavouring
	Meal, meat products	Baking powder
	Eggs	Dessert, topping
	Concentrated and fruit juice	Chow chow
		Pickles
		Vinegar
		Syrup, table
		Chicken, battered and fried
		Chinese foods, fresh and frozen
		Fricot, chicken
		Poutine rapee

Standard Industrial Classification	Raw Material	Products
1080 Miscellaneous Foods		Potato chips
		Juice concentrates
		Crystals, fruit drink
		Popcorn
		Donairs
		Pita bread
		Sauce, sweet
		Sauce, pizza
		Sauce, spaghetti
		Dough mix
		Potatoes, fresh whole peeled
		Starch
1090 Beverage	Sugar	Drinks, soft
	Molasses	Beverages, alcoholic
	Grains	Beer/ale, lager
	Juice concentrate	Wines

Source: New Brunswick Manufacturers and Products 1981
Department of Commerce and Development

APPENDIX III

New Brunswick Processed Meat and Poultry Industry

Manufacturing and Employment

By Employment Group - 1982[1]

# Employees	# Firms	Employment	
		Minimum	Maximum
Under 25	8	36	63
25 - 49	-	-	-
50 - 99	1	40	50
100 - 199	3	395	450
200+	1	220	250
TOTAL	13	691	813

[1]Source: Department of Commerce & Development
Survey of New Brunswick Manufacturers

NB: Data includes poultry processors.

APPENDIX IV

Development Patterns

SIC 1011 - Slaughtering and Meat Processing

New Brunswick (Canada)

	1961	1971	1975	1976	1977	1978	1979	1980
1. Number of Firms	n.a.	10	9	9	5	4	3	3
	(344)	(466)	(477)	(467)	(430)	(491)	(524)	(547)
2. Value of Shipments Goods of Own Manufacturing ('000)	n.a.	26,245	35,141	48,241	36,023	49,712	66,843	89,804
	(1,124,785)	(2,121,358)	(3,818,818)	(3,989,997)	(4,258,368)	(5,515,356)	(6,587,414)	(6,944,716)
3. Value Added Goods of Own Manufacturing ('000)	n.a.	5,297	7,217	7,990	6,252	9,436	12,045	15,444
	(202,490)	(403,711)	(711,711)	(787,734)	(835,446)	(952,754)	(1,084,902)	(1,184,547)
4. Salaries & Wages ('000)	n.a.	3,722	6,393	6,793	5,567	5,740	6,557	7,570
	(128,864)	(248,561)	(391,010)	(439,360)	(477,895)	(519,781)	(564,114)	(646,509)
5. Productivity: Value Added/Total Salaries and Wages	n.a.	142.27	112.80	117.60	112.30	164.42	183.69	204.01
	(157.13)	(162.41)	(182.01)	(179.29)	(174.81)	(183.29)	(186.65)	(183.22)
6. Productivity: Value Added/Total Employment	n.a.	9,260	10,900	12,060	12,163	18,115	22,020	27,927
	(6,960)	(12,884)	(21,570)	(23,701)	(23,071)	(27,309)	(30,461)	(32,984)
7. Employment	n.a.	572	657	663	514	521	547	553
	(29,008)	(31,332)	(32,998)	(33,237)	(33,322)	(34,812)	(34,565)	(35,912)

APPENDIX V

New Brunswick Dairy Industry

Manufacturing and Employment

By Employment Group - 1982[1]

# Employees	# Firms	Employment	
		Minimum	Maximum
Under 25	6	48	51
25 - 49	1	28	31
50 - 99	2	65	105
100 - 199	-	-	-
200+	1	200	250
TOTAL	10	341	437

[1]Source: Department of Commerce & Development
Survey of New Brunswick Manufacturers

NB: Data may differ from the Census of Manufacturers.

APPENDIX VI

Employment Patterns

SIC 1043 - Dairy Products

New Brunswick (Canada)

	1961	1971	1975	1976	1977	1978	1979	1980
1. Number of Firms	43	36	19	18	17	17	14	11
	(1,710)	(809)	(519)	(491)	(466)	(485)	(472)	(450)
2. Value of Shipments Goods of own Manufacturing ('000)	15,860	25,883	42,740	47,185	48,650	52,714	48,286	63,945
	(844,980)	(1,463,218)	(2,612,789)	(2,811,173)	(3,082,715)	(3,399,838)	(3,789,563)	(4,309,104)
3. Value Added Goods of own Manufacturing ('000)	3,702	6,641	13,847	15,001	15,726	17,128	13,330	16,845
	(213,763)	(375,700)	(570,691)	(637,593)	(726,752)	(823,646)	(917,226)	(940,711)
4. Salaries & Wages ('000)	1,850	4,848	9,432	9,110	9,301	9,864	9,155	9,173
	(117,484)	(207,261)	(304,905)	(323,548)	(352,518)	(381,425)	(418,185)	(462,730)
5. Productivity: Value Added/Total Salaries and Wages	100.28	141.10	240.37	165.10	169.07	173.64	145.60	177.00
	(101.98)	(181.35)	(199.18)	(197.06)	(205.30)	(215.93)	(216.43)	(203.30)
6. Productivity: Value Added/Total Employment	4,878	7,002	13,335	16,086	18,055	20,086	19,097	26,150
	(6,608)	(12,584)	(20,095)	(24,261)	(27,373)	(30,537)	(34,531)	(36,102)
7. Employment	760	977	1,038	935	871	828	698	648
	(31,960)	(29,855)	(27,908)	(26,200)	(26,550)	(26,972)	(26,257)	(26,057)

APPENDIX VII

New Brunswick Bakeries

Manufacturing Firms and Employment

By Employment Group - 1982[1]

# Employees	# Firms	Employment	
		Minimum	Maximum
Under 25	43	199	274
25 - 49	3	67	96
50 - 99	1	84	84
100 - 199	2	320	320
200+	-	-	-
TOTAL	49	670	774

[1]Source: Department of Commerce & Development
Survey of New Brunswick Manufacturers

NB: Data may differ from Census of Manufacturers because of the tendancy of the above Survey to include smaller firms.

APPENDIX VIII

Employment Patterns

SIC 1072 - Bakeries

New Brunswick (Canada)

	1961	1971	1975	1976	1977	1978	1979	1980
1. Number of Firms	59	41	31	29	27	30	29	26
	(2,600)	(1,824)	(1,595)	(1,478)	(1,343)	(1,440)	(1,618)	(1,467)
2. Value of Shipments Goods of Own Manufacturing ('000)	11,421	16,283	24,711	21,473	23,075	26,268	28,517	32,361
	(503,171)	(510,123)	(765,016)	(832,004)	(870,549)	(950,200)	(1,089,913)	(1,169,416)
3. Value Added Goods of Own Manufacturing ('000)	5,844	9,250	11,325	10,287	11,629	13,717	14,128	15,460
	(189,091)	(270,722)	(403,341)	(439,424)	(467,513)	(520,905)	(571,051)	(616,011)
4. Salaries & Wages ('000)	2,564	5,070	6,385	7,108	7,830	8,150	9,636	9,939
	(106,640)	(173,411)	(250,863)	(284,409)	(300,862)	(331,026)	(366,297)	(393,435)
5. Productivity: Value Added/Total Salaries and Wages	210.22	182.56	177.92	144.72	148.70	168.30	146.61	155.54
	(177.31)	(156.14)	(160.78)	(154.50)	(155.39)	(157.36)	(155.63)	(156.57)
6. Productivity: Value Added/Total Employment	6,033	9,021	14,823	14,288	15,403	19,238	18,468	21,835
	(5,360)	(9,306)	(14,942)	(16,923)	(18,260)	(19,342)	(21,647)	(23,627)
7. Employment	919	1,026	764	720	755	713	765	709
	(32,268)	(29,091)	(26,998)	(25,966)	(25,575)	(26,991)	(26,334)	(26,365)

APPENDIX IX

New Brunswick Miscellaneous Food Industry

(Including Sugar and Confectionery, Canners)

Employment by Employment Group - 1982[1]

# Employees	# Firms	Employment	
		Minimum	Maximum
Under 25	9	67	83
25 - 49	2	23	78
50 - 99	1	62	62
100 - 199	-	-	-
200+	4	883	1,020
TOTAL	16	1,035	1,243

[1] Source: Department of Commerce & Development
Survey of New Brunswick Manufacturers

Note - This data includes sugar, confectionery and canning firms and will consequently differ from that of Statistics Canada.

APPENDIX X

Employment Patterns

SIC 1099 - Miscellaneous Food Processors

New Brunswick (Canada)

	1961	1971	1975	1976	1977	1978	1979	1980
1. Number of Firms	10	9	4	4	4	6	6	6
	(267)	(283)	(245)	(251)	(243)	(286)	(305)	(312)
2. Value of Shipments Goods of Own Manufacturing ('000)	12,016	17,637	22,498	24,[illegible]	31,976	35,174	37,784	32,100
	(409,731)	(652,770)	(1,533,337)	(1,708,728)	(1,997,265)	(2,278,897)	(2,554,093)	(2,876,918)
3. Value Added Goods of Own Manufacturing ('000)	4,342	8,634	11,393	11,844	14,076	14,672	15,510	11,385
	(153,668)	(371,648)	(565,147)	(657,066)	(753,656)	(879,346)	(9[illegible],640)	(1,125,106)
4. Salaries & Wages ('000)	974	2,169	3,328	3,639	4,386	4,621	5,025	6,718
	(49,134)	(135,979)	(215,851)	(250,572)	(285,939)	(320,710)	(356,541)	(405,031)
5. Productivity: Value Added/Total Salaries and Wages	445.79	370.40	342.33	319.97	320.93	317.50	308.65	169.47
	(312.75)	(273.31)	(261.82)	(262.46)	(263.57)	(274.19)	(270.56)	(277.76)
6. Productivity: Value Added/Total Employment	10,642	17,021	24,714	24,256	28,785	29,403	32,112	20,551
	(12,562)	(19,970)	(28,527)	(32,850)	(35,490)	(39,596)	(42,433)	(46,486)
7. Employment	408	472	461	481	489	499	483	554
	(12,235)	(18,610)	(19,815)	(20,014)	(21,236)	(22,208)	(22,723)	(24,202)

Note: Excludes sugar, confectionery and canners.

APPENDIX XI

New Brunswick Beverage Companies

Manufacturing Firms and Employment

By Employment Group - 1982[1]

# Employees	# Firms	Employment	
		Minimum	Maximum
Under 25	5	52	68
25 - 49	3	82	117
50 - 99	3	102	165
100 - 199	1	99	111
200+	1	120	200
TOTAL	13	455	661

[1]Source: Department of Commerce and Development
Survey of New Brunswick Manufacturers

Note: Data may differ from that of Statistics Canada.

APPENDIX XII

Development Patterns

Beverage Industries

New Brunswick (Canada)

	1961	1971	1975	1976	1977	1978	1979	1980
1. Number of Firms	n.a.	20 (478)	13 (394)	12 (376)	12 (363)	12 (359)	12 (355)	11 (344)
2. Value of Shipments Plants of Own Manufacturing ('000)	n.a.	24,431 (1,261,153)	42,614 (2,056,483)	46,795 (2,076,891)	51,996 (2,255,121)	60,520 (2,453,321)	66,874 (2,728,979)	76,231 (3,126,554)
3. Value Added Plants of Own Manufacturing ('000)	n.a.	12,134 (819,118)	22,503 (1,164,575)	21,713 (1,199,305)	23,576 (1,335,096)	29,373 (1,483,959)	26,087 (1,639,068)	27,179 (1,831,348)
4. Salaries & Wages ('000)	n.a.	5,135 (256,532)	8,834 (413,483)	9,360 (475,093)	10,956 (524,376)	12,624 (556,454)	13,934 (621,062)	16,272 (681,772)
5. Productivity: Value Added/Total Salaries and Wages	n.a.	237.54 (316.93)	254.78 (281.65)	231.48 (252.43)	222.51 (254.60)	232.67 (265.69)	187.21 (263.91)	167.02 (258.62)
6. Productivity: Value Added/Total Employment	n.a.	16,242 (26,485)	30,034 (35,663)	30,539 (36,584)	31,734 (40,253)	34,234 (45,163)	30,511 (49,106)	n.a. (56,456)
7. Employment	n.a.	751 (30,927)	742 (32,630)	711 (32,782)	743 (33,168)	858 (32,858)	855 (33,378)	n.a. (32,438)

APPENDIX XIII

FOOTNOTES

1. Canada, Living Together, Economic Council of Canada (Ottawa: Queen's Printer, 1977), pp. 83-84.

2. New Brunswick, Report of the Agricultural Resources Study, (Fredericton: Queen's Printer, 1977), p. 148.

3. Ibid., p. 149.

4. Ontario, Report of the Royal Commission of Inquiry into Discounting and Allowances in the Food Industry in Ontario (Toronto: Queen's Printer, 1980).

5. Ontario, Report of the Royal Commission, p. 482.

6. Ibid., p. 483.

7. McCallum, Peggy, "Food Processors Turning to Export Markets to Offset Domestic Problems", Toronto Globe and Mail, June 11, 1982, p. R5.